

REMARKS

Claims 1 through 6 and 8-20 remain in the application. Claims 1, 2, 3, 6, 8, 10, 11, 12, 14, 15, 16, 18, 19 and 20 have been amended. Claim 7 has been cancelled.

The drawings stand objected to because the layer between layers 52 and 60 in Figure. 4A was not numbered and was not adequately described in the specification. A proposed drawing amendment to Figure. 4A is enclosed herewith for the examiner's approval. The proposed drawing amendment deletes the layer between layers 52 and 60 such that the elements identified by reference numerals 54, 48, 46, and 52 are disposed directly on layer 60. Support for this amendment can be found in Figure 4A of the originally filed informal drawings, which did not include this layer.

Accordingly, withdrawal of the drawing objection is respectfully urged.

The specification stands objected to because of numerous informalities and/or defects. In response thereto, paragraph [0006] has been amended to change the term of "P=" to --P+--.

Paragraph [0024] has been amended to change "Figure 1" to --Figure 1A--.

Paragraph [0025] has been amended to change "Figure 1" to --Figures 1A and 1B-- ; the term "SiO₂" has been amended to -- SiO₂ --; the phrase "semiconductor material using" has been deleted to clarify the phrase objected to in the Office Action; and the term of "P=" has been changed to --P+--.

Paragraph [0031] has been amended to include the term --Angstroms Å -- after the numbers 5000 to 1500 (support for this amendment can be found in column 5, lines 16-15 of U.S. Patent 5,955,771 which is incorporated by reference into the present application); numeral "60" has been changed to -- 62 -- to clarify the phrase of lines 3-5 of page 9; and the phrase "001" to 002"" has been changed to --0.001" to 0.002"--.

Paragraph [0034] has been amended to change numeral "144" to -- 44 --.

In response to the objection for not numbering the pages and the lines of the specification, enclosed herewith is a replacement page for page one of the specification, which is now numbered as such (the other pages of the specification including the claims and the abstract are already numbered). Regarding the missing line numbering, 37 CFR 1.52 does not require line numbering in the specification. In particular, 37 CFR 1.52 (b)(6) states that paragraph numbering is only optionally required, as was done in the present application.

Accordingly, withdrawal of the specification objections is respectfully urged.

Claims 1-20 stand objected to because of numerous informalities and/or defects. In response, the claims have been amended in the manner suggested by the Office Action, except as follows:

In claim 1, the phrase "said first and second sensors having substantially an equal web thickness and a different active area" has been amended to -- said first and second sensors having substantially equal *diaphragm thicknesses* and different active *areas* -- .

In claim 6, the term "depression" has been amended to -- cavity -- . Support for this amendment can be found, for example, on page 11, the last line of paragraph [0036]. The term "depression" was not amended to "recession", as suggested in the office action, because "recession" does not have an antecedent basis in the specification.

In claim 14, the phrase -- further comprising a header --, has been added. Support for this amendment can be found, for example, on page 14, the first line of paragraph [0043]. The phrase "said header" was not amended to "heater shell", as suggested in the office action, because "heater shell" does not have an antecedent basis in the specification.

Accordingly, withdrawal of the claim objections is respectfully urged.

Claim 8 stands rejected under 35 USC 112, first paragraph, as failing to comply with the written description requirement because the subject matter of the phrase “non-fired conductive glass frit mixture” was not adequately described in the specification. In response, the limitation “non-fired” has been deleted from claim 8, thus, claim 8 now complies with all the requirements of 35 USC 112, first paragraph.

Accordingly, withdrawal of the rejection of claim 8 under 35 USC 112, first paragraph is respectfully urged.

Claims 7, 10-12, 14, and 18-20 stand rejected under 35 USC 112, second paragraph, as being indefinite. In response, the following amendments have been made.

Claim 7 has been cancelled.

Claim 10 has been amended to recite “wherein *at least one* of said cover *members* is fabricated from PYREX” (claim 1, from which claim 10 directly depends, recites that each of the first and second sensors has a cover member).

Claims 11, 12, and 19 have each been amended to recite -- each of said sensors -- instead of “wafer” (“wafer” was not amended to “substrate”, as suggest by the office action, because “substrate” lacks an antecedent basis in claims 11, 12, and 19).

Claim 14 has been amended to recite the phrase -- further comprising a header -- , as indicated earlier, in order to provide antecedent basis for the “said header”.

Claim 18 has been amended to recite the phrase “said dielectric *isolation is achieved with* silicon dioxide.” Antecedent basis for this phrase can be found in claim 1, from which claim 18 indirectly depends.

Claim 20 has been amended to recite the phrase “each *of said* contact *locations*.” Antecedent basis for this phrase can be found in claim 6, from which claim 20 directly depends.

Accordingly, withdrawal of the rejection under 35 USC 112, second paragraph, is respectfully urged.

Claims 1-20 stand rejected under 35 USC 103(a) as being unpatentable over U.S. Patent 5,955,771 to Kurtz *et al.* (Kurtz '771) in view of U.S. Patent 4,222,277 to Kurtz *et al.* (Kurtz '277) and/or U.S. Patent 4,025,942 to Kurtz (Kurtz '942).

Remaining claims 1 through 6 and 8-20 each call for first and second sensors having different active areas. It is respectfully submitted that Kurtz '771 in view of Kurtz '277 and/or Kurtz '942 fail to teach or suggest this feature.

The office action states that Kurtz '942 suggests modifying the transducer of Kurtz '771 in view of Kurtz '277, which allegedly includes both absolute and differential sensors, such that the sensors of the transducer have different active areas. However, Kurtz '942 merely discloses a low pressure transducer comprising a semiconductor bridge element bonded to a silicon diaphragm, the diaphragm secured to a glass ring, the glass ring mounted to a housing. Column 1, lines 33-52 of Kurtz '942 merely provides a formula for determining the center stress of a clamped edge diaphragm, and does not teach or suggest to one of ordinary skill in the art, the desirability of providing a transducer, having first and second sensors, with different active areas. Hence, Kurtz '771 in view of Kurtz '277 and/or Kurtz '942 fail to arrive at the invention of the claims remaining in the application.

Accordingly, withdrawal of the rejection under 35 USC 103(a) is respectfully urged.

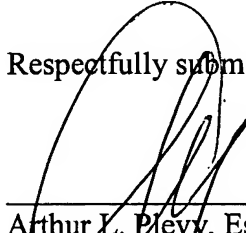
The reference to U.S. Patent 4,790,192 to Knecht *et al.* (Knecht) made of record, but not relied upon, has been carefully reviewed. It is respectfully submitted that Knecht also fails to disclose, teach or suggest the subject matter of remaining claims 1 through 6 and 8-20.

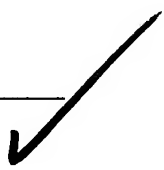
Favorable reconsideration of this application is respectfully requested as it is believed

that all outstanding issues have been addressed herein and, further, that claims 1 through 6 and 8-20 are in condition for allowance, early notification of which is earnestly solicited. Should there be any questions or other matters whose resolution may be advanced by a telephone call, the Examiner is cordially invited to contact Applicant's undersigned attorney at his number listed below.

No fee is believe to be due as a result of this communication. The Commissioner is hereby authorized to charge any other fees which may be required or credit any overpayment to Deposit Account No. 50-2061.

Respectfully submitted,



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PTN38065.1

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COMBINED ABSOLUTE DIFFERENTIAL TRANSDUCER

FIELD OF INVENTION

[0001] This invention relates to a combined true differential and absolute pressure transducer mounted in a single header.

BACKGROUND OF INVENTION

[0002] The present pressure transducer consists of two leadless piezoresistive sensors (separately) mounted on the header pins in accordance with the methods disclosed in Kulite Patent No. 5,955,771 ('771) entitled, "Sensors for use in High Vibrational Applications and Methods for Fabricating the Same" which issued on September 21, 1999 to A.D. Kurtz et al., the inventor herein and assigned to Kulite Semiconductor Products, Inc., the assignee herein. The entire ('771) patent is incorporated herein by reference. The individual sensors themselves are also produced in accordance with the methods outlined in the aforementioned patent with certain exceptions.

[0003] In the above patent, the individual sensor had four apertures in the glass structure affixed to the silicon member through which metal-glass frit was inserted to make connection to the metalized contact areas on the silicon member, and subsequently secured to the pins of the header. The first or absolute sensor is made in the described manner (Figure 1A). Figure 1A is presented herein as prior art and is Figure 1 of the 5,955,771 patent. As can be ascertained, Figure 1A is a

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